NOTES FROM THE OTAGO UNIVERSITY MUSEUM

V. *On an "Index-Collection" for small Zoological Museums in the Form of a Genealogical Tree of the Animal Kingdom*

EVEN in the smallest museums it is for many reasons difficult, and often impossible, to arrange the representatives of the various groups of animals in such a way as to bring out clearly their mutual relations. Hence arises the need of an "index-collection" in which each group is represented by one or more specimens so arranged as to indicate as accurately and clearly as possible the affinities of the groups they typify. The form which naturally suggests itself as the most suitable for a small type-collection of the kind indicated is that of a solid phylogenetic diagram or "genealogical tree."

An excellent form of "diagram in three dimensions" for lecture purposes has been devised by Haddon; the model I have recently had constructed appears to me to be more suitable for permanent use in a museum.[1]

It consists of a vertical wooden rod about 3 feet 6 inches in height, representing the main line of descent from Protozoa to Vertebrata; from this spring, at various levels, branches representing types which lie off the direct line; these have in most cases an upward direction, but are directed downwards from their point of origin in the case of degenerate groups. At appropriate points on this framework are placed either actual specimens or models of one or more examples of each group.

As the Vertebrata inevitably take up the largest share of space in a museum as well as of public attention, each of the classes of that group is represented on the model, while in the case of Invertebrata one or two examples only are given to each type or sub-kingdom.

For each group—type or class, as the case may be—a label is provided, giving (*a*) the name of the group, (*b*) the name of the specimen or model serving as an example of it, and (*c*) the place in the Museum where representatives of the group are to be found.

A more correct mode of construction for a model of this kind would be to make the branches of such a length as to bring the ends of all of them, and consequently the specimens they support, to one level; advance of organisation would thus be indicated, not by height above the ground, but by distance from a centre. But such a model would be far less convenient than the form I have adopted.

VI. *On the Size and the External Sexual Characters of the New Zealand Octopus* (*O. maorum*, Hutton)

In his work on the octopus,[2] as well as in his more recent pamphlet, "Sea-Monsters Unmasked,"[3] Mr. Henry Lee states that the largest British specimen he had examined had arms 2½ feet long; that examples with arms of about 4½ feet had been found in the Mediterranean; but that the largest specimens known were those found on the coast of North America (Vancouver's Island), one of which had been measured by Mr. J. K. Lord, who found the length of one arm to be 5 feet.

From this it would seem not to be generally known, even by naturalists, that a species of octopus is very common on some parts of the coast of New Zealand, and notably in Dunedin Harbour, the average size of which is fully equal to, while it occasionally exceeds, that of the specimen from Vancouver's Island just referred to.

I have recently had mounted for this Museum a female *Octopus maorum*, the longest arm of which is 4 feet 3½ inches, but larger specimens have been frequently seen by my assistants and myself. The following are the dimensions of the largest individual—a male—which we have actually measured:—

		Feet	Inches
Length of body and head		1	1
Diameter of body		0	8
Length of arms—			
1st pair	Left	5	5
	Right	5	3
2nd ,,	Left	4	10
	Right	5	2
3rd pair	Left	4	7
	Right (hectocotylised)	2	11
4th ,,	Left	4	3
	Right	4	8
Diameter of largest suckers (on 1st or "dorsal" arms)		0	1¾

Besides the hectocotylisation of the third right arm, there is a striking difference between the two series which I have not seen mentioned. In the male the suckers simply undergo a gradual diminution in size in passing from the prominal to the distal end of the arm; they retain their characteristic form, and are easily counted up to about half an inch of the tip. In the female, on the other hand, the suckers become quite indistinct for several inches, and in some cases for fully a foot, from the extremity of the arm, taking on the form of small tubercle-like elevations. As an instance of this difference I may mention that in a male specimen with the first left arm 4 feet 2½ inches in length, from 292 to 319 suckers could be readily counted on each arm; while in a female with the corresponding arm of the same length, only 90 to 115 could be counted on each arm, the distal portions bearing tubercles so crowded as to make it practically impossible to count them.

T. JEFFERY PARKER

Dunedin, N.Z., June 19

THE BRITISH ASSOCIATION

SECTION H—ANTHROPOLOGY

Prof. W. Turner read a paper on *The Index of the Pelvic Brim as a Basis of Classification.*—That the inlet to the human pelvis presented variations in outline and in the proportions of its conjugate and transverse diameters has been recognised since the publication by Vrolik in 1826, and by M. T. Weber in 1830, of their important memoirs on the pelvis in certain races of men. In 1866 Zaaijer, of Leyden, in his study of the pelvis in women of Java, recognised differences in form in women of the same race, and he expressed these differences numerically, taking the transverse diameter as – 100, and then multiplying the conjugate diameter by 100, and dividing by the transverse; the numeral so obtained is the index of the pelvic brim, or "pelvic index." By applying this method to the pelvis in different races of man, a classification of races based on the index of the brim may be framed. In carrying out this method the male pelvis should especially be studied, as in women the pelvis, for sexual reasons, does not present such wide divergences in the form of its inlet as in men. To give precision to the classification, it will be advisable to employ special terms, and in order as far as possible to bring these terms into accordance with those employed in the classification of crania based on differences in the relations of the length to the breadth of the skull, Greek terms will be employed. Thus dolichopellic will signify a pelvis the conjugate diameter of which is longer than the transverse, or closely approaching to it; platypellic, a pelvis in which the transverse diameter greatly exceeds the conjugate; and mesatipellic, a pelvis in which the transverse diameter is not so greatly in excess of the conjugate. Owing to the comparatively limited number of pelves in the different races of men which have been measured, either it may not be possible to fix definitely at present the numerical limits of each of these groups; but the following were adopted provisionally by the author:—dolichopellic, a pelvis with brim index above 9·5; platypellic, one with brim index below 9·0; and mesatipellic, a pelvis with a brim index between 9·0 and 9·5, both inclusive. The number of pelvic measurements from which the author drew his conclusions were comparatively few, but from these it would seem that the dolichopellic division contains Australians, Bushmen, Hottentots, Kaffirs, and Andamanese; whilst Negroes, Tasmanians, and New Caledonians are mesatipellic, and Europeans, Chinese, and probably American Indians belong to the platypellic group. When a pelvis has dolichopellic characters it approximates in the relations of its transverse and conjugate diameters to the form of the pelvic brim met with in mammals lower than man; and in the dolichopellic Australians, Bushmen, Kaffirs, and Andamanese, the length of the sacrum is on the average greater than the breadth, and this also is an animal character.

Mr. W. F. Stanley exhibited a portable scale of proportions of the human body. The instrument is a small thin scale or rule of ivory, about three inches in length, and divided on each edge of the two faces by lines which represent the proportions of the human body, the male on the one side, and the female on the other. The opposite edge to that on which the proportions are shown is divided into 100 parts in the same space as the height of the body. The object aimed at by the use of this scale is to compare any person, or statue, or photograph with the model of perfect human form given by John Marshall, or to determine the parts of the body in proportional decimals of the whole, to facilitate description.

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[1] The model referred to was exhibited and described in detail at a meeting of the Otago Institute on June 9.

[2] "The Octopus; or, the 'Devil-Fish' of Fiction and of Fact." (Chapman and Hall, 1875)

[3] One of the "Handbooks" of the Fisheries Exhibition, 1883.

Mr. J. Theodore Bent read a paper on *Insular Greek Customs* as seen in the islands of the Ægean Sea. He proceeded to notice the modern Greek customs concerning birth and childhood, comparing them with ancient ones, among the customs described being that of fate-telling, and the notions regarding the deleterious influence of Nereids on children. The customs connected with death and burials were next described, and shown to be the same as those of the Greeks 2000 years ago. Some instances were given of the poetry of death-wails, and it was shown that the belief in Charon and Hades existed still in the islands of the Ægean Sea. Among the other customs described in the paper were feasts for the dead, which could be traced to a remote antiquity, and the ancient belief in vampires still survived. Instances were also given from agricultural life of the identity between ancient and modern customs, including the ceremony gone through before sowing of seed, the use of skins for grain, the granaries in the ground, in the kind of agricultural implements used, and also in the names used for animals.

Gen. Pitt-Rivers explained the provisions of the Act of Parliament relating to the preservation of ancient monuments. The Act scheduled the most important and best-known ancient monuments in the country, and provided that these should be registered. and after their registration, although they remained the property of the owner of the land on which they were situated, and might be sold along with the land, could not be destroyed by the owners. There were also a vast number of minor monuments of great interest and value well worthy of being preserved. It was not proposed that the Government should meddle with these minor monuments. What he (Gen. Pitt-Rivers) had done with regard to these minor monuments was to endeavour to see all the principal gentlemen most interested in local archæology, and ask them to let him know when any injury was done to monuments in their district. In the Island of Lewis the agent of Lady Matheson had promised to assist him in every way he possibly could; and Dr. Aitken, Inverness, had promised to him to do the same thing; and he had received promises of a like kind from a number of other gentlemen. In his wanderings throughout the country in connection with the working of this Act of Parliament, he had found no owner of the monuments scheduled in the Act unwilling to put his monument under the Act because he wished to destroy it. The feeling of those who were unwilling to put their monuments under the Act had rather been that they considered they were quite as able and willing as the Government to preserve the monuments. What the State desired was to preserve the monuments in the hands of any owners into whose hands they might fall. In these days there was no knowing to whom land might belong now that the gospel of plunder was proclaimed, and it was desirable that there should be some sort of security that the monuments might be preserved hereafter. As the result of his wanderings in order to work this Act in England and Wales, about half of the owners of the scheduled monuments had voluntarily placed them under the protection of the Act. In certain cases the monuments were leased, and the proprietors refused to place them under the Act without compensation, which the Government could not give.

Miss A. W. Buckland read a paper on *American Shell-Work and its Affinities*. In this paper the attention of anthropologists was called to some remarkable works in shell recently discovered in mounds in various States of North America, as described by Mr. W. H. Holmes in a valuable contribution to the *Proceedings* of the Bureau of Ethnology, Washington. These shell-works consist not only of beads of various shapes and sizes, but also of celts, fish-hooks, chips, and other implements of war and the chase, bracelets, pins, crosses of various forms, and more particularly of masks and elaborately engraved gorgets, the ornamentation upon which seems to bear some religious or astronomical signification. From the fact that implements and ornaments of the same form are found in the islands of the Pacific, and that some of the peculiar symbols engraved upon the ancient American gorgets reappear slightly altered on shell gorgets in the Solomon and Admiralty Islands, and also on the great Japanese drum exhibited this year at the Inventions Exhibition, the author inferred that a commerce existed between the islands of the Pacific and the American continent prior to the Spanish conquest.

Mr. E. F. im Thurn read a paper giving an account of the red men about Roraima, in British Guiana. In the paper an interesting account was given of the journey to Roraima, the scenery being described, as well as the manners and customs of the natives. In some of the villages visited the natives had never previously seen white men, and the utmost excitement was caused by the arrival of Mr. im Thurn. The natives of the villages visited were repulsively ugly, and it was almost impossible to distinguish men from women by their dress. The native tribes lived in remarkable isolation from each other, and even the different families in the same village lived in remarkable isolation from each other. There were traces of the Stone Age to be found of high interest. Stones were shaped into adzes and wedges, and they were often made into forms of animals, or of whistles, and models of bottles, which the natives had seen. There was among these tribes a revival of the ancient art of making stone implements, though these implements were simply regarded as ornaments. The natives also made drawings of rocks, which were used as ornaments, and which were evidently imitations of the drawings seen on the actual rocks. Mr. im Thurn closed his paper with an account of a number of some very remarkable games played by the tribes for the amusement of the visitors, in which the movements of animals were imitated in dances.

Mr. J. W. Crombie read a paper entitled *A Game with a History*, which was really an exposition of the antiquity, universality, and signification of the well-known game of "Hop-Scotch," a term which is probably a corruption of "hop-score." The author commenced by pointing out that as children in their play generally imitate something they have observed to be done by their elders, and a game once introduced is handed down from generation to generation of children long after its original has ceased to exist, many innocent-looking children's games conceal strange records of past ages and pagan times; hence the importance of the study of this apparently frivolous subject is now fully recognised by anthropologists. The game of "Hop-Scotch" is one of great antiquity, having been known in England for more than two centuries, and it is played all over Europe under different names. Signor Pitrè's solar explanation of its origin appears improbable, for, not only is the evidence in its favour extremely weak, but it would require the original number of divisions in the figure to have been twelve instead of seven, which is the number indicated by a considerable body of evidence. It would seem more probable that the game at one time represented the progress of the soul from earth to heaven through various intermediate states, the name given to the last court being most frequently Paradise or an equivalent, such as Crown or Glory, while the names of the other courts correspond with the eschatological ideas prevalent in the early days of Christianity. Some such game existed prior to Christianity, and the author considers that it has been derived from several ancient games; possibly the strange myths of the labyrinths may have had something to do with "Hop-Scotch," and a variety of the game played in England under the name of "Round Hop-Scotch" is almost identical with a game described by Pliny as being played by the boys of his day. The author believes that the early Christians adopted the general idea of the ancient game, but they not only converted it into an allegory of heaven, with Christian beliefs and Christian names, they Christianised the figure also; abandoning the heathen labyrinth, they replaced it by the form of the Basilicon, the early Christian church, dividing it into seven parts, as they believed heaven to be divided, and placing Paradise, the inner sanctum of heaven, in the position of the altar, the inner sanctum of their earthly church.

Mr. George Campbell, M.P., read a paper entitled *The Rule of the Road from an Anthropological Point of View*, in which he maintained that for all right-handed people the rule of going to the left hand in passing people was the most scientific and the most convenient. There was nothing, he maintained, to be said in favour of going to the right, and he held that the British rule should be maintained both for roads and for footpaths, and that we should give in to no right-handed innovation.

Miss Jeanie M. Laing read a paper on *The Modes of Grinding and Drying Corn in Old Times*. In some parts of Aberdeenshire are found the remains of the straw kilns that were used for drying corn before sending it to the mill. The kiln was conical in shape, joists called cabers were laid across, some distance from the ground, and above these were roughly-hewn sapplings called simmers; on the top of these was spread straw, and on the straw was laid the corn. A fire was kindled on the ground, and the heat therefrom dried the corn. A stone called a sparker was placed above the fire to catch the sparks, but in spite of this precaution the kiln sometimes took fire. At an early period corn was ground between two millstones, with an iron rod by way of a handle; this primitive mill was called a quern, and was generally turned by two women, as in Eastern lands. In later times querns were used for grinding malt.

Mr. A. J. Evans contributed a paper on *The Flint-Knappers' Art in Albania*, and exhibited some beautifully-worked gun-flints and strike-a-lights, partially cased in ornamented lead sheaths studded with glass gems.

Mr. W. M. Flinders Petrie read a paper on *The Discovery of Naukratis*, the remains of which city had been brought to light during the work of the Egypt Evploration Fund in the first half of this year.

Mr. Thomas Wilson read a paper on *A New Man of Mentone*, in which he described the discovery, in March, 1884, in one of the famous caverns at Mentone, of a skeleton, believed to belong to the Palæolithic age. The excavations were made during the winter of 1883-4 by M. Louis Julien, of Marseilles, and at his expense, aided by the advice of M. Bonfils, Curator of the Museum at Mentone. This cavern had been searched many times before, and about 9 or 10 feet in depth had been removed from the original surface, which, however, was plainly marked by a large piece of *brèche* which still adhered to the perpendicular side wall. The formation of the floor of the cavern and the process of its filling up presented all the usual evidences of human occupation and industry: charcoal, burnt earth and ashes, hearthstones, split and broken bones of animals (estimated to the number of 15,000 pieces), flint instruments, chips, nuclei, &c., &c., were found in sufficient number, quantity, and distribution to indicate an indefinitely long occupation. No morsel of pottery was found, nor were any of the stone implements polished. At the depth (from the original surface) of 8 metres 40 centimetres was found the skeleton of this "new man of Mentone." He was laid on his back with his limbs extended, and had for funeral equipments three large chips of flint (*éclats de silex*), 6 or 7 inches long and 2½ inches broad, in the form of the largest scrapers, placed one on each shoulder like epaulettes, and one on the brow. It was evidently an interment. This became more evident when it was found that the body was placed in a sort of natural vault or tomb, formed on one side by the wall of the cavern, and on the other by an immense block of stone with an overhanging edge, which reached to a line perpendicularly over the centre of the skeleton. This placing of the body required an excavation between these rocks of 3 or 4 feet in depth. The skull was broken into sixty fragments by the pick of the workman; it was carefully taken up and put together by M. Bonfils, and is now exposed in the Museum at Mentone. This was a fortunate accident, for while the rest of the skeleton was being exhumed a quarrel broke out as to ownership, which ended in the theft and utter destruction of all that remained. Mr. Wilson maintained that the new discovery of the skeleton dissipated all idea of disturbance, for while disturbance might exist for one or two, or even five or six feet, to the depth of twenty or thirty feet it would be impossible. It must be conceded that the human industry as manifested by the objects found in these caverns, indicated their occupation during the palæolithic age, for of the thousands found, all bear the impress of that age, while none denote particularly the age of polished stone. Mr. Pengelly said that he had visited the cavern where M. Rivière's new man of Mentone was found, and he was of opinion that the man found by M. Rivière had not been interred at all, but had died where the body was found, and had been buried by the sand blown into the cavern, and the waste of the walls of the cavern. He had measured the place himself where the body was found, and found that it was only eight feet below the surface. The skull of the man was so good that he should have been glad to have possessed such a skull. It was a large skull, and the measurements he made of the bone showed that the man must have been of great stature. The bones of animals found in he cavern were partly those of animals now extinct, and partly those of existing species. With reference to the age in which the man found by Rivière lived, his impression was that it was the palæolithic age. He would not say so positively, however, and from the information they possessed he did not think that the man would be of any value whatever for or against the doctrine of human antiquity.

Dr. R. Munro read a paper on *The Archæological Importance of Ancient British Lake-Dwellings and their Relation to Analogous Remains in Europe*. Dr. Munro commenced by giving a short introductory notice of the discovery and investigation of the crannogs of Ireland and the lake-dwellings of Central Europe. He then gave a *résumé* of the more recent explorations made among the crannogs of Scotland and the remarkable objects recovered from them. From a comparative examination of these relics with other collateral antiquities of the Celts, he arrived at the conclusion that the lake-dwellings of Scotland were essentially the product of Celtic genius, that they were constructed for defensive purposes, and that those in the south-west parts of the country attained their greatest development in post-Roman times, after Roman protection was withdrawn from the provincial inhabitants, and they were left single-handed to contend against the Angles on the east and the Picts and Scots on the north. Having established the Celtic origin of the crannogs of Ireland and Scotland, Dr. Munro proceeded to inquire if there is any ancestral relationship between them and the lake-dwellings of Central Europe. Taking into account the recent discovery of lacustrine abodes in the Holderness and the few previous records of their existence in Wales and other parts of England, together with the statement of Cæsar that the Britons were in the habit of making use of wooden piles and marshes in their defensive works, he thought that such indications are not merely solitary instances, but the outliers of a widely distributed custom which prevailed in the southern parts of Britain at an earlier date than that assigned to the crannogs of Scotland. Hence he suggested the theory that the British Celts were an offshoot of the founders of the Swiss lake-dwellings, who emigrated into Britain when these lacustrine abodes were in full vogue, and so retained a knowledge of the custom long after it had fallen into desuetude in Europe. On this hypothesis it would follow that subsequent immigrants into Britain, such as the Belgæ, Angles, &c., being no longer acquainted with the subject, would cultivate new and perhaps improved methods of defensive warfare; whilst the first Celtic invaders, still retaining their primary notions of civilisation, when obliged to act on the defensive would naturally have recourse to their inherited system of protection. In support of this hypothesis the author pointed out that the geographical distribution of lake-dwellings, so far as they are known in Europe, closely corresponds with the area formerly occupied by the Celts; that no lake-dwellings have been yet found either in the northern or southern parts of Europe, though the topographical and hydrographical conditions of these regions are not unfavourable for such structures; that the *fascine* dwellings in Europe were identical in structure with the crannogs; and that, though the pile-dwellings were not largely used in the British Isles, the principles on which they were built were not unknown, their disuse being due to topographical and other considerations. Finally, he argued that the wideness in the chronological gap which is supposed to separate the crannogs from the lake-dwellings of Europe is more apparent than real, as the latter existed during the Roman occupation of Gaul, and in one instance at least the custom survived to about the tenth century.

Prof. D. J. Cunningham exhibited a large coloured plate of sections of a young chimpanzee, illustrative of some important points of comparison between the chimpanzee and man. Prof. Cunningham said that he had purchased a male chimpanzee, which was said to have died in the process of second dentition, and which he believed to be about six years of age. The body of the chimpanzee was frozen for two days, and he now exhibited the sections of the chimpanzee for the purpose of showing one or two points of comparison between the chimpanzee and man. Any one looking at the plate would be attracted to the region of the face, where the protrusion was shown which was so well seen in the living animal. If they compared it with the corresponding section of man they would find brought out very forcibly the elongated brute-like tongue of the chimpanzee. An anatomist looking at the section now exhibited would fix his attention at once upon the spine. In man the spinal form was beautifully curved. It showed an alternation of curves in the different regions of the body, and to these curves in the spine of man in a great measure was due in his erect attitude. It was remarkable that the chimpanzee even at six years of age there was a very manifest lumbar curve. In the Biological Section that day there had been described the spine of a child six years of age, and it was remarkable that the lumbar curve in this chimpanzee of a corresponding age was very much more marked than in the child. At six years the chimpanzee was much more advanced in life than a child six years old, and therefore his lumbar curve was correspondingly greater. If they wished to get at the distinction between the spine of man and the chimpanzee they must look lower down at the sacrum. After noticing one or two other points, Dr. Cunningham drew the conclusion that the human child occupied an intermediate position between the chimpanzee and the human adult. In the plate he now exhibited they would see compared the skull of the chimpanzee with that of man, bringing out that the cerebral or larger brain in man extended a good deal further back than in the chimpanzee; and there was not much difference between the New World ape and the chimpanzee in that respect.

Dr. J. G. Garson, one of the secretaries of the Section, read a paper on *Abnormal and Arrested Development as an Induction of Evolutionary History*. Dr. Garson began by stating that, perhaps, the most fertile source of information regarding the history of man's evolution was derived from a study of his embryological development. Another source from which much valuable information regarding the early history of our own specialisation, and that of other animals, might be gleaned, was Teratology, which had for its domain the consideration of abnormal conditions of development. Many of the conditions included under this branch were of a pathological nature, and due to the effects of disease; others, however, were not—such, for example, as an abnormal and an unusual production of normal structures and cases of arrested development. It was to a consideration of some conditions occurring under one or other of these categories that he ventured now to call attention. The examples which he had selected had come more especially under his own observation. Persons were occasionally found with abnormal development of hair on their bodies. The type of mammal was an animal whose body was covered with hair. Under certain circumstances the hair might more or less disappear, according to the conditions under which the animal lived. In man it was only feebly developed, except on the head; and in the cetacea or whales it had entirely disappeared, with the exception of a very few bristles near the mouth. Dr. Garson proceeded to explain how excessive development of hair takes place in man. In ordinary cases the hair-growing apparatus in the embryo remained stationary, instead of keeping pace with the growth and development of the other organs of the body, with the result that no hairy covering such as was found in other mammals was present, but only short rudimentary hairs appeared at intervals. But in some exceptional cases this stationary condition of the hair follicles did not occur, and they went on actively developing with the rest of the body, with the result that a hairy covering was produced over the body. The hairless condition now normal in man had evidently been gradually acquired through a long period of time, as such a change could not take place rapidly and become such a stable condition as it was found to be otherwise. Abnormal development of fingers occurred sometimes in man, but must be classed entirely apart from such forms of abnormality as had been considered in the hair-growth. In arrested development the abnormal organ or portion of the body, instead of going through the various stages it usually does till it arrives at the condition it normally assumed in the group of animals in which it occurs, stops short at one or other stages. The stage at which it stops may correspond to that which is normal in a lower grade of animal life, and so gives direct evidence that the higher forms of animal life, such as man, pass through and beyond the stages at which the lower stop. It must not be forgotten also that in some respects an animal of a lower grade may possess specialisations in some structures or organs of a higher ground than animals much higher in the scale of life.

Dr. Robert Laws, from Livingstonia, Lake Nyassa, East Central Africa, read a long and interesting paper descriptive of the manners and customs of the Bantu tribes living around Lake Nyassa in Eastern Central Africa. In the outset of his paper Dr. Laws said that Lake Nyassa was 350 miles long, and varied from 16 to 60 miles broad, and around that vast inland sea they knew of fifteen different tribes, speaking so many different languages, besides dialects of these languages. Though these tribes had much in common, they differed among themselves in many of their habits, customs, and religious beliefs. He proceeded to notice the names and residences of the leading tribes, and gave a brief summary of what was known of their history. As a rule, he said, the people of all these tribes were physically developed, but their vigour and general healthy condition differed considerably, depending chiefly on the climate, soil, and food. Where maize and mapira were the staple foods, the natives were strong and hardy. Where cassava root was their chief food, and especially if along with that there was a state of actual or dreaded warfare, the people were weak and sickly. On the hills the people were hardier and more vigorous than on the lake-shores and on the river-banks. Mental energy was greater on the hills than at the lake-side, and at places where there was most radiated heat this was less than where the breezes played freely. Keenness of vision and acuteness of hearing were spoken of as being remarkable in civilised tribes, and among the lake tribes these faculties attracted the attention of travellers, but Dr. Laws was inclined to attribute these characteristics to training and exercise in given directions rather than to any radical superiority in the organs of sight and hearing among the tribes. All the tribes depended principally on agriculture for their support, and the only appearance of a rudimental division of labour was to be found in the classes of fishermen and blacksmiths. No traces of a Stone age had been found among these tribes. Yet in certain districts they were to be found cultivating their gardens with tools of hard wood instead of iron, distance from markets being the cause of their use. At the east side of Nyassa many lake-dwellings were found in 1875, and often on war being threatened the inhabitants of the lake shore took refuge by living in such constructions. Iron mines had been found, and copper had been found in one of those near the Livingstone range. The iron of the mines was usually near the surface. Charcoal was used for smelting. Dr. Laws went on to describe the manner in which the tribes made their canoes, their nets, and their huts. Fire was procured among them by the rapid rotation of rods of wood between the hands, the spark being caught in cloth and kindled into a flame. The natives exhibited great surprise when they saw the traveller strike a lucifer match, and that was regarded by them as an unquestionable proof of his superior knowledge. The natives indicated time by pointing to the position of the sun. They named Sunday as the day of God, Monday as the day for beginning work, Saturday as the day for stopping work. The intermediate days were indicated by numbers. The eclipse of the moon was described as the moon put in a bag, and comets as stars with tails. Slavery was common in all the tribes, and half of its horrors had not been told. Infanticide was not practised, but infant mortality was very high, and cases had been found of children labouring under a lingering disease having been buried alive. Polygamy was common, and the number of a man's wives taken as an index of his wealth. One chief told him he had a hundred wives, and he (Dr. Laws) believed he was rather under-estimating than overestimating the number. The early marriage of girls was the rule, and in one tribe a girl was often betrothed before she was born. In buying land they had to buy it first from the chief and then buy the tenant-right from the cultivators. After describing the customs of the tribes relating to the punishment of crime, Dr. Laws concluded his paper by noting the leading peculiarities of the language of the tribes, directing especial attention to the complications in the forms of speech, and especially to the extraordinary number of variations in the verbs.

Mr. E. H. Man contributed a paper on *The Nicobar Islanders*.—In the interior of Great Nicobar there is a wild race, styling themselves "Shab Dawá," of whom as yet little information has been obtainable; they are distinct from the inhabitants of the other islands and of the villages on their own seaboard, who are of Malay origin, and by whom they are called "Shom Peñ" ("Shom" denoting tribe," and "Peñ" being the tribal designation). It appears certain that they are the descendants of a very ancient aboriginal population of Mongolian origin. The first mention that we find of them is from the pen of pastor Rosen, a Danish missionary, who, while resident at the Nicobar Islands between the years 1831–34, spoke of them, from hearsay, as in much the same degraded condition as we find them at the present day. He said that "they wear no clothes, possess no houses, live like animals in the depths of the forest, and shun the sight of men, never leaving their lairs except to search for food, which they sometimes steal from such of the coast huts as are temporarily vacated or occupied only by a few aged or infirm folk whom they are able to surprise or overpower." In 1876 and 1881 a few members of this tribe living near the north-east of Great Nicobar were seen by the late Mr. de Röepstorff, who was accompanied in the latter year by Col. T. Cadell, V.C., Chief Commissioner of the Andamans and Nicobars. During the last eighteen months Mr. E. H. Man, while in charge of the Nicobar Islands, has paid six visits to Great Nicobar, on four of which he succeeded in seeing and photograhing parties of this tribe, both near Ganges Harbour and on the west coast. On the first of these occasions (viz. February 1884) two youths, aged about eighteen and fourteen years respectively, were persuaded to leave their friends for seven days, at the end of which they were conveyed back from Nancowry in the settlement steamer. During their visit to Mr. Man they proved themselves tractable and timid, and submitted with a good grace to ablutions which were found very necessary. Although this is the first recorded instance of a Peñ having ventured from his savage haunts, these lads exhibited the Oriental characteristic absence of wonderment at all the novel surroundings and tokens of civilisation in the Government settlement. They were fair specimens of their race, the members of which are found to be usually well nourished, of good physique, and, while young, favoured with pleasant features. The height of the males appears to range between 5 feet 2 inches and 5 feet 8 inches; their skin is fairer than that of the generality of the coast people, who, on their part, are less dark than the Malay; the hands and feet seem to be decidedly large, and bear evidence of the rough work of their daily lives; the hair, which is straight, is commonly worn uncut and unkempt, and, as habits of cleanliness are manifestly foreign to their nature, its condition can better be imagined than described. As a result of their friendly intercourse in recent years with the coast people, they have acquired the habit, so universally practised among the latter, of chewing the betel-nut (*Chavica betle*) with or without quicklime, and are consequently beginning to be similarly disfigured with black teeth, though not yet to the hideous extent common among their more civilised, or, rather, less savage, neighbours. They likewise now imitate the latter in respect to clothing, the men adopting the narrow loin-cloth and the women a small cloth skirt. Their dwellings are small, and cannot compare with those of the coast people, and are indeed but little, if at all, superior to those of the Negritos in Little Andaman, but they more nearly assimilate the former in design as well as mode of construction, for they are erected on posts; the floors being raised 6 or 7 feet above the ground necessitate the use of ladders. It is impossible, within the limits of this abstract, to make further mention of the dwellings, or to describe the peculiar sack-like cooking-vessels of this strange race. Mr. Man hopes before long to be able to supplement in many particulars the rudimentary information which has hitherto been obtainable regarding the Peñ, but the task is one of considerable difficulty, for, apart from the dread entertained by this tribe towards aliens, their frequent feuds place from time to time a temporary barrier to all intercourse between them and our friends on the coast, through whom at present all our communications have to be conducted. The nearest portion of Great Nicobar Island is, moreover, about 60 miles distant from the Government settlement at Nancowry.

SCIENCE IN RUSSIA

THE Kazan Society of Naturalists continued last year its valuable explorations of Eastern Russia, and we have before us several new fascicules of its *Memoirs* and *Proceedings*.[1] M. Ivanitsky publishes a list of plants of the Government of Vologda, which contains 804 Spermatophytæ, Gymnospermæ, and Sporophytæ. As to these last, only 6 Equisetaceæ, 5 Licopodiaceæ, and 20 ferns being given, the list obviously will be much extended by subsequent research. The flora of Vologda, which is situated on the limits of the middle and Arctic Russian floras, offers a certain special interest, and M. Ivanitsky has not neglected to mention the wild and cultivated plants which find their northern limits within the province. It consists chiefly of Compositeæ (107 species), 49 Cyperaceæ, 48 Gramineæ, 41 to 34 each of Ranunculaceæ, Caryophylleæ, Rosaceæ, and Cruciæeræ, 27 to 22 Papilionaceæ, Scrophulariæ, Labiatæ, Salicineæ, and Polygonaceæ, and 21 to 19 Umbelliferæ, Filices, and Orchideæ. The list of plants is prefaced by a masterly sketch of the physical conditions of separate parts of the province. The same volume contains a paper by. M Mislavsky on the irritability of the nervous-muscular system, being an inquiry into the causes of the well-known differences of the effects of electrical irritation on the frog, when measured by the methods of Dubois-Reymond. All causes which may depend upon the conditions of the experiments themselves having been eliminated, there still remain notable differences which must be ascribed to the state of the system altogether. A paper, by Th. Tsomakion, on the laws of transmission of electricity through gases, embodies the results of several new experiments in this field. In a former inquiry the author, by introducing into the chain of condensation a discharger where the discharge could take place only at close contact of the two electrodes, had experimentally proved the law, already deduced by Forselman and Heer, that the whole amount of heat produced at the discharge of the condensator does not depend upon the composition of the chain. But as soon as he introduced a layer of gas between the electrodes, he found that his results widely differed from all previously obtained by other students; he undertook a series of experiments for discovering the sources of that discrepancy of results, and he has arrived at a long series of conclusions which are of great interest, but ought to be submitted to a closer inquiry. This last is continued.—To the same vol. xiii. M. Zaitseff contributes a paper on the petrography of the crystalline rocks in the neighbourhood of Krasnovodsk, on the eastern shore of the Caspian. The chief rock in the Shakh-Adam Mountains, which reach about 600 feet above the sea, is a massive, unstratified quartz-dioritic porphyrite (according to the classification of Herr Rosenbusch). Between the bays of Muravioff and Soymonoff the rocks are closely akin to the above, and might be described as a quartz-mica-diorite. The former extends also for some miles east of Krasnovodsk, and is intersected by veins of a muscovite-granite (according to Herr Rosenbusch's classification) and quartz porphyry of rare occurrence, its magnesial mica being replaced by a potassium mica.—The same author contributes two papers on the petrography of the Soymonoff valley in the south-east part of the district of Ekaterinburg, which incloses the 3200 feet high Yurma summit and several high ridges of mountains. The author makes a detailed inquiry into the structure of the crystalline rocks of this locality (granites, gneisses, and various schists), and is inclined to admit that at least one part of the olivine-bearing serpentines endow their origin to the metamorphism of the actinolite schists. The iron ores and gold-bearing deposits are also described, the age of these last being undoubtedly settled as Post-Pliocene, as they contain numerous remains of Mammoth, *Bos primigenius*, *Cervus tarandus*, and *Cervus alces*. We may remark that the very high position of several gold-bearing deposits on the slopes of the valleys and their structure is one testimony more in favour of their glacial origin, but the author does not touch this interesting question. He mentions also—a fact which has often been doubted, but is now confirmed more and more—that the gold of these deposits is derived from the decomposition of the chloritic slates. The papers are accompanied by a geological map. In the same volume (fasc. 4) we find a preliminary report, by S. Korzinsky, on a botanical excursion into the delta of the Volga. The list of plants is not yet given by the author, and he publishes only a valuable sketch of the general characters of the delta, distinguishing in it two different regions: the delta proper, which consists of fluviatile deposits; and the Steppe region, covered with the so-called *bougry*, or a kind of *kames*, first described by Karl Bear and still bearing his name, about which *bougry* the author holds a different opinion as to their origin, denying—with full right, we suppose—their origin from the retreat of the Caspian.

As to the *Proceedings* of the Kazan Society, we are glad to learn from them that three new meteorological stations (at Sarapul, Tcherdyn, and Debessy) have been added to those already organised by the Society. There was a great want of meteorological observations precisely for that part of North-East Russia. Several shorter papers are embodied in the *Proceedings*:—On the geology of the Vetluga region, by P. Krotoff (a polemic concerning the Permian and Trias, as also the southern limit of the boulders).—On the fauna of Kazan (between the Kama and Vyatka), by N. Varpakhovsky. The author gives the lists of fishes found in the lakes and rivers, and lists also of serpents and amphibians of the region.—On the preparation

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[1] *Trudy Obschestua Estestvoispytatelei pri Kazanskom Universitete*, vol. xii. fasc. 5 and 6; vol. xiii. fasc. 1 to 4.—*Protokoly* (*Proceedings*) of the same for the years 1883 and 1884.